IN THE SPECIFICATION

Page 1, please insert between lines 1 and 2 the heading and subheading as follows:

--BACKGROUND OF THE INVENTION

B1

(1) Field of the Invention--.

Please replace the paragraph spanning lines 2-6 of Page 1 as follows:

B2

The present invention relates to the driving method for the LCD electrooptic-switching element and the manufacturing of the automatic electronic driving circuitry for the LCD electrooptic-switching element, which is among other applications especially interesting as the basic active element in the various optical systems and automated protection devices, such as automatic welding helmets.

Page 1, between lines 17 and 18 please insert the subheading as follows:

B3

--(2) Description of Related Art--.

Page 1, please replace the paragraphs spanning lines 18-28 as follows:

B4

So far several technical solutions and applications of the electrooptical switching elements were made. The solutions are disclosed in the following patents: the use of the double "twist-nematic"

LCD cell (Gurtler, US 3,890,628); one TN and one "Guest-host" LCD cell (~~Morizama~~ Moriyama, US 3,967,881); the use of the LCD or the ceramic active element (Budminger, FR 2,293,188); the LCD with passive and active cell (Hornell, EP 0,005,417); the optical switch and the variable polarizer (Fergason, US 5,074,647).

There are also a number of partial solutions of said technical problem. All of the modern technical solution incorporate an autonomous battery power supply supported by the semiconductor solar cell which significantly increases the life time of the battery power supply (Pfanzelt, ~~DE 3,017,242~~ DE 3,017,241: Bruhin, ~~EP 0,09,514~~ EP 0,091,514: Tyers, GB 2,138,590: Bruhin CH 671,485: Stanelli, EP 0,331,861):

Amended Page 3a, before line 1, please insert the heading as follows:

--SUMMARY OF THE INVENTION--

Please replace the paragraph on Amended Page 3a, spanning line 18 as follows:

According to the invention, ~~The~~ the problem is solved by employing ~~according to independent patent claims~~ a driving scheme for an LCD electrooptic element with alternating square-wave electric signals where the amplitude of the electric signals may vary between different electric levels according to the actual status of the LCD electrooptic element so that optimum dynamics of the electrooptic response is assured. According to the invention, an integrator controls the changing of the polarity of the electric driving signals by integrating the potential differences

between electrodes of an LCD electrooptic switching element so that the value of the time integral of the driving voltage is kept within a predetermined interval to determine the time interval for the polarity change while allowing for complete annihilation of the long-term DC component of the electric driving signal for the LCD electrooptic switching element. In addition, the integrator according to the invention may complement the above driving scheme by allowing for the short, spontaneous discharging of the capacitance of the LCD electrooptic switching element at every reversal of the polarity of the driving signals.

Amended Page 3a, after line 18, insert the heading as follows:

--BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS--.

Page 4, between lines 18 and 19, insert the heading as follows:

--DETAILED DESCRIPTION OF THE INVENTION--.

Please replace the paragraph on page 8 spanning lines 25-26 as follows:

The time dependence of the amplitude of the electric driving signals for the LCD electrooptic switching element 1, providing for the maximum speed of the activation of the said switching element 1, can be optionally implemented in the above described electric driving scheme by using the analogue switch 42, controlled by the logic circuitry 30, which is in turn controlled by the sensor 35 so that it corresponds to the time dependence presented in figure 1. This is

achieved in such way that the control electrical impulse (Sig in Fig. 4), which is generated by the sensor 35 at its output 34, connected to the input 31, activates the logic circuitry 30. The said logic circuitry via the outputs 33 of the control bus, connected to the control inputs 44 of the analogue switch 42, selects between the voltages (V_{SW}, V_{SH}, V_{TH}), which are connected to the inputs 45, 46, 47 of the analogue switch 42. The selected voltage V_{LCD} at the output 43 is connected to the driving input 41 of the voltage translator ~~37~~ 36.

Please replace the paragraph on page 17, spanning lines 14-31 as follows:

The circuit 111 assuring the complete transfer of the charge from the transfer capacitor 101 to the integrating capacitor 110, can be an amplifier with a gain of one. Also here the amplifier can not be built by an operational amplifier, since an operational amplifier consumes too much power. More suitable circuit 111 can be implemented by the use of two transistors 115 and 116 of the opposite polarity: NPN and PNP, which have their base leads interconnected and represent the input 108 to the circuit 111. Both ~~emmiter~~ emitter leads of these transistors are interconnected as well and represent the input 109 to the circuit 111. The remaining collector leads of both transistors are connected to the ground and the power supply respectively – see Fig. 11. The integrating capacitor 110 is connected between the input 108 of the circuit 111 and the ground. The output 112 of the circuit 111 represents the voltage across the integrating capacitor 110. The charge on the transfer capacitor 101 causes one of the transistors 115 and 116 to conduct, depending on the polarity of the charge at the transfer capacitor 101, which in turn results in the

charge transfer from the transfer capacitor 101 into the integrating capacitor 110. The advantage of such circuitry is that the same charge, as brought by the transfer capacitor 101, is consumed from the power supply by one of the two transistors only during the charge transfer, the rest of the time both transistors are not conducting and thus no power is consumed from the power supply. For operation the circuit needs a power supply V_{CC}.

B10

Please replace the paragraph spanning page 17, line 34 through page 18, line 19 as follows:

B11

The discharge of the integrating capacitor 110, when the voltage across its terminals reaches the predefined value V_C, which in turn causes the polarity reversal of the LCD control signals, would normally be implemented by a standard comparator with an operational amplifier and a discharge unit; the same function can be implemented by the use of two transistors 117 and 118 of the opposite polarity NPN and PNP, where the base lead of the transistor with one polarity is connected to the collector lead of the transistor with the opposite polarity, Fig. 12. The ~~emmiter~~ emitter lead of the PNP transistor 117 represents an input to the comparator 54, while the interconnected base lead of the PNP transistor 117 and the collector lead of the transistor 118 represent the other input 55 to the comparator for the reference value V_C. When the voltage across the integrating capacitor 110 reaches the predefined value, the PNP transistor 117 starts to conduct. This causes the PNP transistor 117 to conduct the electric current, which in turn causes the conduction of the NPN transistor 118. The said transistor 118 reduces the value of the

reference voltage so that the PNP transistor 117 keeps conducting until the integrating capacitor 110 is fully discharged. The output from the comparator 57 is implemented by an additional transistor 119, so that the charge impulse during the discharge of the integrating capacitor 110 through the ~~emmiter~~ emitter of the NPN transistor 118 causes the transistor 119 to conduct. This in turn causes the electric impulse to appear at the output 57 of the comparator 54. The discharging of the integrating capacitor 110, implemented in the way described, assures minimal power consumption, since the current is drawn from the power supply through transistors 117, 118 and 119 only during the discharge of the integrating capacitor 110. The comparator circuit needs a power supply V_{CC} for operation as well.